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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/031,588

01/23/2002

Atsushi Suzuki

8014-1004

6324

466

7590

02/10/2004

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EXAMINER

GREENE, JASON M

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/031,588	SUZUKI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason M. Greene	1724	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 4, 9, 17 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. The Examiner notes that, while the International Bureau received the certified copies of the foreign priority documents on 06 July 2001, copies of the certified copies of the priority documents have not been received from the International Bureau. While Applicants are under no obligation to do so, the Examiner suggests Applicants file photocopies of the certified copies of the priority documents with the next response as this should expedite prosecution of the application for all concerned.

### ***Response to Amendment***

### ***Response to Arguments***

2. Applicant's arguments, see page 12, lines 3-21, filed 12 November 2003, with respect to the combination of the JP 55-114323 and JP 63-14886 references have been fully considered and are persuasive. The 35 USC 103 rejection of claims 1, 2, and 5 in view of the two references has been withdrawn.

3. Applicant's arguments, see page 11, lines 18-21, filed 12 November 2003, with respect to the specific pore sizes recited in claims 4 and 9 have been fully considered

and are persuasive. The 35 USC 103 rejection of claims 4 and 9 in view of JP 2000-70635 and JP 63-14886 has been withdrawn.

4. Applicant's arguments filed 12 November 2003 in regard to the 35 USC 103 rejection of claims 1-3 and 6-8, 10, and 11 in view of JP 2000-70635 and JP 63-14886 have been fully considered but they are not persuasive.

5. In response to Applicants' argument that the two references do not teach the first layer having a higher density than the second layer, the Examiner agrees with Applicants that the two layers of the JP 63-14886 reference (reference 2) are formed from a single paper. However, since reference 2 teaches the single paper having a density gradient, one of ordinary skill in the art would recognize that the density in the first layer is different than the density in the second layer. Therefore, even though the layers are formed on a single paper, reference 2 still suggests to one of ordinary skill in the art that the layers can be formed such that first layer has a density higher than the second layer. Since JP 2000-70635 teaches the first and second layers being formed from separate papers, one of ordinary skill in the art would have recognized from the teachings of reference 2 that the density of the first layer could have been higher than the density of the second layer.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3 and 5-8, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Published Patent Application JP 2000-70635 in view of Japanese Published Patent Application JP 63-14886.

With regard to claim 1, JP 2000-70635 discloses an air filter comprising a first filter layer (11) formed of a first filter paper material having a predetermined density, said first filter layer being impregnated with oil, and a second filter layer (11a) provided on a downstream side of the first filter layer so as to be independent from said first filter layer, said second filter layer being formed of a second filter paper material, said second filter layer being impregnated over its entirety with an oil-repellant agent in Figs. 1-3 and paragraph numbers [0006] to [0043] of the English language translation. It is particularly noted that JP 2000-70365 explicitly teaches the second filter layer being formed as a separate, independent layer in paragraph number [0040].

JP 2000-70635 does not disclose the second filter paper material having a lower density than said predetermined density of said first filter layer.

JP 63-14886 teaches a similar filter having a first filter layer impregnated with oil having a different density (due to the density gradient in the paper) than a second hydrophobic filter layer in Fig. 1 and pages 1 and 2. Since no translation of any portion of the reference could be located, the concise explanation of the relevance of the

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reference provided by the Applicants as part of the IDS filed on 23 April 2002 was relied upon by the Examiner in interpreting the teachings of the reference. Specifically, the first paragraph on page 2 of the translated official action issued by the foreign patent office was relied upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the density gradient of JP 63-14886 into the air filter of JP 2000-70635 to provide an air filter having desired filtration properties for a given application.

With regard to claim 2, JP 2000-70635 discloses the first filter layer and the second filter layer being combined integrally with each other in Figs. 1-3 and paragraph numbers [0006] to [0043] of the English language translation. Since the layers are disclosed as being laminated together, the layers are seen as being integrally combined.

With regard to claims 3 and 8, JP 2000-70635 discloses the air filter further comprising an additional layer (12) in Figs. 1-3 and paragraph numbers [0006] to [0043] of the English language translation.

With regard to claim 5, JP 2000-70635 discloses the second filter layer having a downstream end which is exposed to air in Fig. 2. Since the air which passes through

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the filter contacts the downstream end of the second layer, the layer is seen as being exposed.

With regard to claims 6 and 10, JP 2000-70635 discloses the second filter layer (11a) being subjected to an oil-repellent treatment and then the first and second filter layers being combined integrally with each other in paragraph numbers [0006] to [0043] of the English language translation.

With regard to claims 7 and 11, JP 2000-70635 does not disclose the first filter layer and the second filter layer being combined integrally with each other, and then said second filter layer being subjected to an oil-repellant treatment and said first filter layer being impregnated with oil.

However, since claim 11 is directed to an air filter, the method by which the article is made is not seen as patentably distinguishing the claimed air filter from the applied prior art. Specifically, the recited air filter will have the same construction regardless of whether the filter layers are combined before or after the oil and oil-repellant are added. The air filter will still comprise a first filter layer impregnated with oil and a second filter layer containing an oil-repellant. While it may be difficult to impregnate the layers with the oil and the oil-repellant after the layers are combined without allowing any of the oil to migrate into the second filter layer and without allowing any of the oil-repellant to migrate into the first filter layer, one of ordinary skill in the art

would recognize that such a task could be accomplished using a carefully designed process.

With regard to claim 12, JP 2000-70635 discloses an air filter comprising a first layer (11) of a first filter paper impregnated with oil, and a second layer (11a) of a second filter paper placed in a downstream air direction adjacent the first layer, the second layer formed as an oil-repellant lipophobic layer over an entire thickness of the second layer in Figs. 1-3 and paragraph numbers [0006] to [0043] of the English language translation.

JP 2000-70365 does not disclose the density of the first filter paper being greater than the density of the second filter paper.

JP 63-14886 teaches a similar filter having a first filter layer impregnated with oil having a different density (due to the density gradient in the paper) than a second hydrophobic filter layer in Fig. 1 and pages 1 and 2. Since no translation of any portion of the reference could be located, the concise explanation of the relevance of the reference provided by the Applicants as part of the IDS filed on 23 April 2002 was relied upon by the Examiner in interpreting the teachings of the reference. Specifically, the first paragraph on page 2 of the translated official action issued by the foreign patent office was relied upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the density gradient of JP 63-14886 into the air filter



of JP 2000-70365 to provide an air filter having desired filtration properties for a given application.

With regard to claim 13, JP 2000-70635 discloses the upper, upstream face of the first layer oozing with oil and the second filter layer having a downstream end which is exposed to air in Fig. 2 and paragraph [0024] of the English language translation. Since the air which passes through the filter contacts the downstream end of the second layer, the layer is seen as being exposed.

With regard to claim 14, JP 2000-70635 discloses the second layer being impregnated with a resin containing fluorine in paragraph [0025] of the English language translation.

8. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-76355 in view of JP 63-14886 as applied to claim 12 above, and further in view of Bowser et al.

JP 2000-70635 discloses the first and second layers being laminated together in paragraphs [0040] and [0041] of the English language translation.

JP 2000-70635 does not disclose an adhesive layer binding the first layer with the second layer with the first and second layers contacting one another, the adhesive layer penetrating a downstream side of the first layer and an upstream side of the second layer or the adhesive layer comprising an olefin material or a polyester material.

Bowser et al. discloses using a polyester adhesive to facially join to layers of filtration material together in Fig. 3 and col. 7, lines 31-40.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the polyester adhesive of Bowser et al. into the filter of JP 2000-70635 and JP 63-14886 to provide a reliable laminating means for joining the two layers together. It is further noted that since the first and second layers are porous, the polyester hot melt adhesive will inherently penetrate a downstream side of the first layer and an upstream side of the second layer.

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-76355 in view of JP 63-14886 and Bowser et al.

With regard to claim 18, JP 2000-70635 discloses an air filter comprising a first layer (11) of a first filter paper impregnated with oil, and a second layer (11a) of a second filter paper placed in a downstream air direction adjacent the first layer, the second layer formed as an oil-repellant lipophobic layer over an entire thickness of the second layer in Figs. 1-3 and paragraph numbers [0006] to [0043] of the English language translation.

JP 2000-70365 does not disclose the density of the first filter paper being greater than the density of the second filter paper.

JP 63-14886 teaches a similar filter having a first filter layer impregnated with oil having a different density (due to the density gradient in the paper) than a second

hydrophobic filter layer in Fig. 1 and pages 1 and 2. Since no translation of any portion of the reference could be located, the concise explanation of the relevance of the reference provided by the Applicants as part of the IDS filed on 23 April 2002 was relied upon by the Examiner in interpreting the teachings of the reference. Specifically, the first paragraph on page 2 of the translated official action issued by the foreign patent office was relied upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the density gradient of JP 63-14886 into the air filter of JP 2000-70365 to provide an air filter having desired filtration properties for a given application.

JP 2000-70635 does not disclose an adhesive layer binding the first layer with the second layer with the first and second layers contacting one another, the adhesive layer penetrating a downstream side of the first layer and an upstream side of the second layer or the adhesive layer comprising an olefin material or a polyester material.

Bowser et al. discloses using a polyester hot-melt adhesive to facially join to layers of filtration material together in Fig. 3 and col. 7, lines 31-40.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the polyester hot melt adhesive of Bowser et al. into the filter of JP 2000-70635 and JP 63-14886 to provide a reliable laminating means for joining the two layers together. It is further noted that since the first and second layers are porous, the polyester hot melt adhesive will inherently penetrate a downstream side of the first layer and an upstream side of the second layer.

With regard to claim 19, JP 2000-70635 discloses the second layer being impregnated with a resin containing fluorine in paragraph [0025] of the English language translation.

10. Applicant cannot rely upon the foreign priority papers to overcome these rejections because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

#### ***Allowable Subject Matter***

11. Claims 4, 9, 17, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 4, 9, 17, and 20, the prior art made of record does not teach or fairly suggest the air filters of claims 1, 3, 12, or 18 having the recited pore structure.

#### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Tanaka et al. reference discloses a similar air filter.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

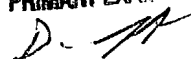
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene  
Examiner  
Art Unit 1724



jmg  
January 31, 2004

DUANE SMITH  
PRIMARY EXAMINER

  
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